AERMEC

air conditioning

60Hz R410A RS485

Installation Manual

NXW

- WATER COOLED CHILLER AND HEAT PUMP
- INDOOR UNITS
- SCROLL COMPRESSORS

EN

INXWPY. 14.03. 4437830_02

Dear Customer,
Thank you for choosing an AERMEC product. This product is the result of many years of experience and in-depth engineering research, and it is built using top quality materials and advanced technologies.
In addition, the CE mark guarantees that our appliances fully comply with the requirements of the European Machinery Directive in terms of safety. We constantly monitor the quality level, and as a result AERMEC products are synonymous with Safety, Quality, and Reliability.

The data may be subject to modifications deemed necessary for improving the product at any time and without forewarning.

Thank you again.
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AERMEC S.p.A. reserves the right to make any modifications considered necessary to improve its products at any moment and is not obliged to add these modifications to machines that have already been manufactured, delivered or are under construction.

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1. SELECTION AND PLACE OF INSTALLATION

Before installing the unit, decide with the customer the position in which it will be placed, pay attention to the following points:

- the support surface must be able to withstand the weight of the unit;
- The NXW series are for indoor use (protection grade IP40) and must be installed leaving the necessary technical spaces (see "Minimum technical spaces"). Observance of these spaces is to be considered indispensable in order to allow normal and extraordinary maintenance operations.
- The unit must be installed by a qualified technician in accordance with the national laws in force in the country of installation.

2. POSITIONING

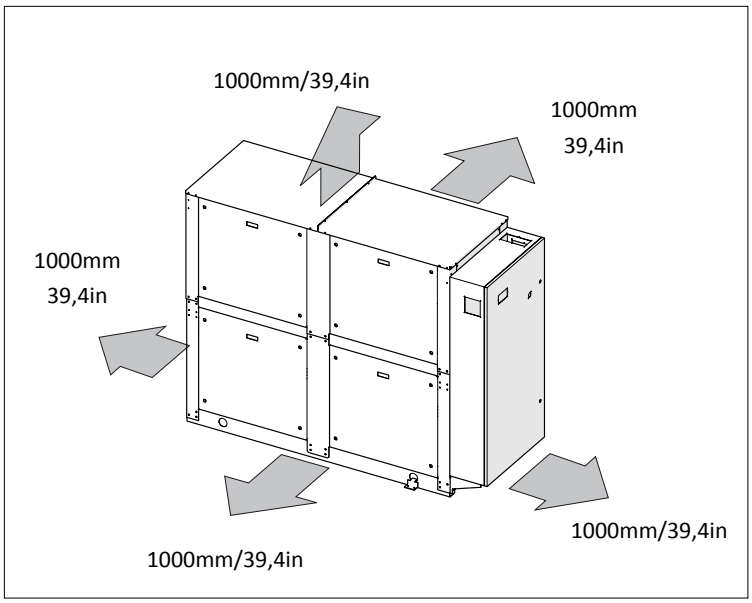
The machine is delivered from the factory wrapped in estincoil.
Before moving the unit, check the lifting capacity of the machines used.
Once the packaging has been removed, the unit must be handled by qualified personnel with the suitable equipment. To transport the machine use either a forklift or lifting belts (see figure)

- The holes in the base to be used for lifting are indicated with yellow adhesives showing a black arrow. The blades (not included) which are adequately scaled must protrude from the base unit for a sufficient length so that the lifting straps can be tautened upwards without them encountering any interference.
- Make sure that the straps have been approved to support the weight of the unit, be careful that they a properly fixed to the upper frame and to the lifting blades, the safety closure must ensure that the straps do not work loose of their housing. The hooking point of the lifting frame must be on the vertical of the centre of gravity (see transport figure).
- In order to avoid damaging the unit with the cables, insert protection elements between them and the machine. It is absolutely forbidden to stand beneath the unit.
- Take into account that when the chiller is working, vibrations may be generated; it is therefore advisable to install anti-vibration supports (AVX accessories), fitting them to the holes in the base according to the assembly diagram.

Note: for more information on the installation position of the supports AVX, please contact us

- Fasten the unit by checking carefully that its on the same level; check that easy access to the hydraulic and electric part is allowed.

2.1. MINIMUM TECHNICAL SPACES (mm/in)



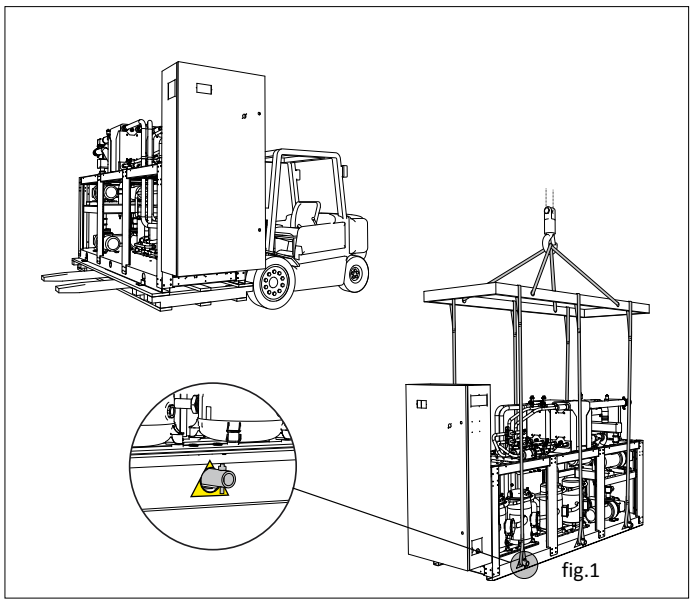
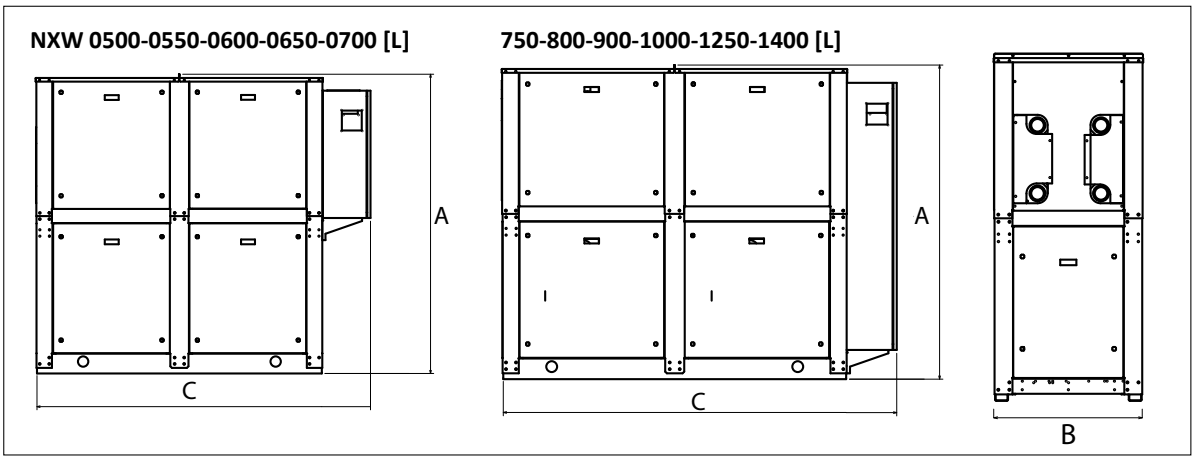
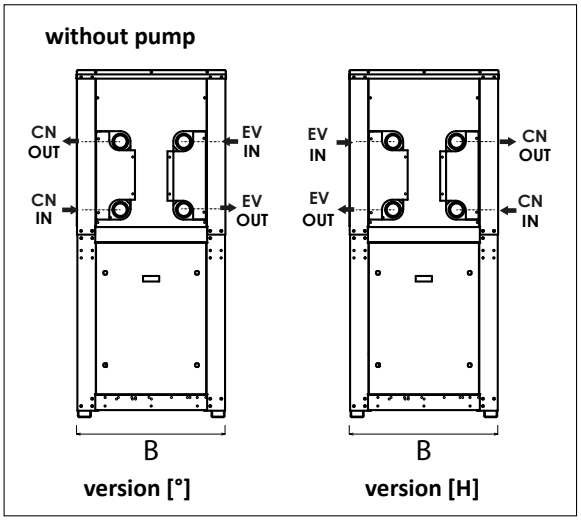


fig.1

ATTENTION
Use all of the available holes for lifting
The blades not included

3. DIMENSIONAL TABLES

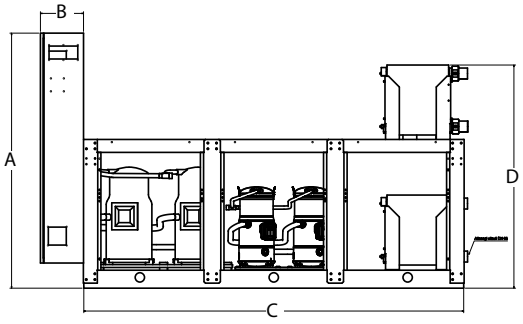


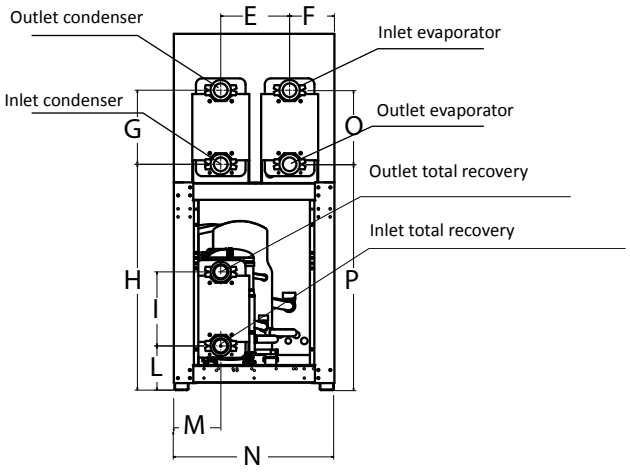


Model	U.M.	0500	0550	0600	0650	0700	0750	0800	0900	1000	1250	1400
EVAPORATOR (PLATES)												
Hydraulic connection Victaulic in/out	Ø	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	3"	3"	3"
CONDENSER (PLATES)												
Hydraulic connection Victaulic in/out	Ø	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	2" 1/2	3"	3"	3"

NXW													
DIMENSIONS (without pumps)			0500	0550	0600	0650	0700	0750	0800	0900	1000	1250	1400
Hight A	L	mm	1885						1885				
		in	74,2						74,2				
Width C		mm	800						800				
		in	31,5						31,5				
Lenght B		mm	2090						2420				
		in	82.28						95,28				
Hight A	HL	mm	1885						1885				
		in	74,2						74,2				
Width C		mm	800						800				
		in	31,5						31,5				
Lenght B		mm	2090						2420				
		in	82.28						95,28				

NXW 0500~0750 WITH TOTAL RECOVERY (T)

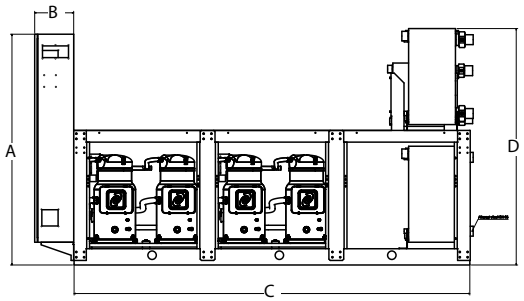


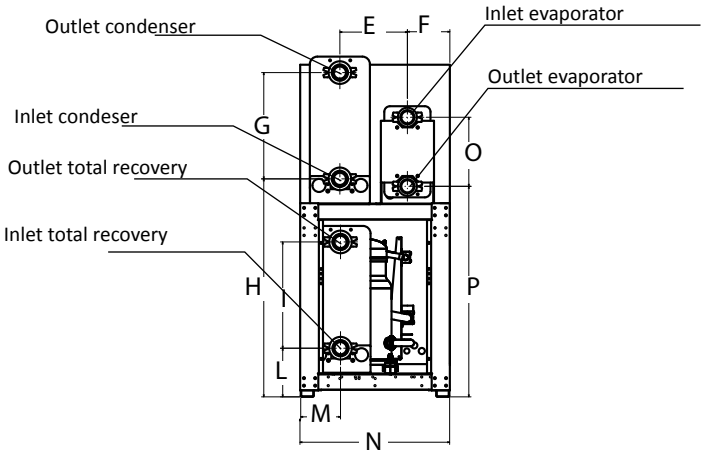


POSITION							
Model	**U.M.**	**0500**	**0550**	**0600**	**0650**	**0700**	**0750**
A	mm	1775					1775
B		300					300
C		2644					3044
D		1553					1818
E		343					343
F		225					225
G		369					568
H		1125					1165
I		369					568
L		220					260
M		233					213
N		800					800
O (NXP°/H)		369					369/568
P		1125					1125
HYDRAULIC CONNECTION **(VICTAULIC IN/OUT)**							
Evaporator (plates)	Ø	2"1/2					
Condenser (plates)	Ø	2"1/2					
Total recovery(plates)	Ø	2"1/2					

POSITION							
Model	**U.M.**	**0500**	**0550**	**0600**	**0650**	**0700**	**0750**
A	in	69,9					69,9
B		11,8					11,8
C		104,1					119,8
D		61,1					71,6
E		13,5					13,5
F		8,9					8,9
G		14,5					22,4
H		44,3					45,9
I		14,5					22,4
L		8,7					10,2
M		9,2					8,4
N		31,5					31,5
O (NXP °)		14,5					14,5
O (NXP L)							22,4
P		44,3					44,3

NXW 0800~1400 WITH TOTAL RECOVERY (T)





POSITION			
Model	**U.M.**	**0800-0900**	**1000-1400**
A	mm	1775	1775
B		300	300
C		3044	3044
D		1818	1818
E		343	343
F		225	225
G		568	568
H		1165	1165
I		568	568
L		260	260
M		213	213
N		800	800
O (NXW°)		369	568
O (NXW H)		568	
P		1125	1125
HYDRAULIC CONNECTION (VICTAULIC IN/OUT)	**U.M.**	**0800-0900**	**0900 H 1000-1400**
Evaporator (plates)	ø	2”1/2	3”
Condensater (plates)		2”1/2	3”
Total Recovery (plates)		2”1/2	3”

POSITION			
Model	**U.M.**	**0800-0900**	**1000-1400**
A	in	69,9	69,9
B		11,8	11,8
C		119,8	119,8
D		71,6	71,6
E		13,5	13,5
F		8,9	8,9
G		22,4	22,4
H		45,9	45,9
I		22,4	22,4
L		10,2	10,2
M		8,4	8,4
N		31,5	31,5
O (NXW°)		14,5	22,4
O (NXW H)		22,4	
P		44,3	44,3

4. HYDRAULIC CIRCUIT

The NXW standard version is comprised of a circuit including:
- Evaporator (plate type exchanger)
- Condenser (plate type exchanger)
- Water inlet probe SIW
- Water outlet probe SUW

NB:
Water filter versions standard: NOT INCLUDED

the weld pipe is supplied as standard with the VICTAULIC connection is included

The NXW version with pumping group also includes:

- **Circulation pump**
- **Water filter**
- **Drain valve**
- **Flow switch**
- **Water outlet/inlet probe**
- **Expansion tank (25 litres)**

4.1. EXTERNAL HYDRAULIC CIRCUIT RECOMMENDED

The selection and installation of components outside the NXW should be carried out by the installer, who should work according to the technical code of practice and in compliance with the legislation in force in the country of destination (MD 329/2004).
Before connecting the pipes make sure that they do not contain stones, sand, rust, slag or any foreign bodies that may damage the system.
It is necessary to make a by-pass to the unit to be able to carry out the cleaning of the pipes without having to disconnect the machine. The connection pipes must be properly supported so as not to burden the unit with their weight.
On the water circuit, it is advisable to install the following instruments, if not foreseen in the version you have:
1. Two pressure gauges of suitable size (input and output section).
2. Two anti-vibration couplings (input and output section).
3. Two shut-off valves (normal input section, output section calibrating valve).
4. Two thermometers (input and output section).
5. Expansion tanks
6. Pump
7. Accumulation tank
8. Flow switch
9. Safety valve
10. Charging unit
11. Water filter
11. *The filter protects only the exchangers (in case of particularly dirty water, we recommend an external filter to protect the pumps)*

Compulsory hydraulic circuit compnents (in case of an NXW provided without the hydronic kit (evaporator side, condenser side):
- At the inlet or each plate heat exchanger the installation of a flow switch (not included) is compulsory at the penalty of invalidating the warranty.
- Installation of the mechanical filter is compulsory
at the inlet of each plate heat exchanger at the penalty of invalidating the warranty. The filter must have filtering holes with a diameter not greater than one millimetre and must be kept clean, therefore the cleaning must be verified after installation of the unit and the condition must be checked periodically.
It is necessary, that the water flow rate to the chiller unit complies with the values reported in the performance tables.

The systems loaded with anti-freeze or specific regulations, need the water backflow system. Special supply/recovery water, is carried out with appropriate treatment systems.

4.2. SYSTEM LOAD

- Before starting the load, check that the system drain tap is closed.
- Open all the drain valves of the system and of the related terminals.
- Open the shut-off devices of the system.
- Start the filling by slowly opening the water system load cock placed outside the machine.
- When water begins to flow from the terminal vent valves, close them and continue loading up to read on the gauge the value of 1.5 bar.

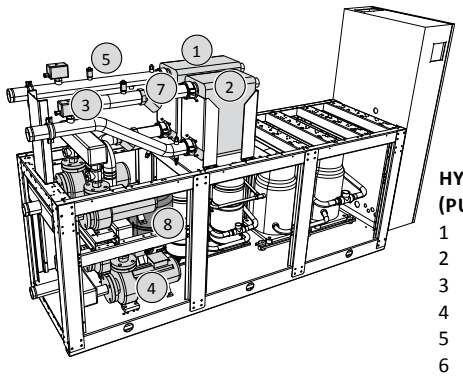
The system is loaded at a pressure between 1 and 2 bar.
It is advisable to repeat this operation once the machine has worked for some hours and to periodically check the system pressure, restoring if it drops below 1 bar.
Check the hydraulic seal of the joints.

4.3. EMPTYING THE SYSTEM

- Before starting to drain the system, turn "off" the unit
- Check that the water system load/restore tap is closed
- Open the drain tap outside the machine and all the vent valves of the system and the corresponding terminals.

If the system uses glycol, this liquid should not be drained to the environment because it is a pollutant. It must be collected and, if possible, reused.

Example of NXW Version [H]



HYDRAULIC CIRCUIT KEY (PUMP VERSION)
1 Condenser
2 Evaporator
3 Flow switch
4 Pumps
5 Air bleed valve
6 Water discharge
7 Filter
8 Expansion tank

NB
The Victaulic joints and the soldering studs for the condenser and evaporator are provided

WATER FEATURES

PH	6-8
Electric conductivity	less than 200 mV/cm (25°C)
Chloride ions	less than 50 ppm
Sulphuric acid ions	less than 50 ppm
Total iron	less than 0.3 ppm
Alkalinity M	less than 50 ppm
Total hardness	less than 50 ppm
Sulphur ions	none
ammonia ions	none
Silicone ions	less than 30 ppm

5. PERCENTAGE DISTRIBUTION OF WEIGHTS ON SUPPORTS

4.4. PERCENTAGE DISTRIBUTION OF WEIGHTS ON SUPPORTS (MODEL ° - SIZE FROM 0500 L TO 0800 L)

MODEL		EMPTY						PERCENTAGE WEIGHT DISTRIBUTION ON SUPPORTS (%)			
		Weight		CENTRE OF GRAVITY							
				mm		in					
		kg	lb	Xg	Yg	Xg	Yg	A	B	C	D
NXW0500 L	°	730	1610	391	928	15	37	25%	24%	26%	25%
NXW0500 L	° + 1pumps	928	2047	385	1127	15	44	30%	28%	22%	20%
NXW0500 L	° + 2pumps	992	2187	384	1184	15	47	29%	27%	23%	21%
NXW0500 L	° + 3pumps	1056	2328	382	1233	15	49	28%	26%	24%	22%
NXW0500 L	° + 4pumps	1120	2469	381	1277	15	50	28%	25%	25%	23%
NXW0550 L	°	791	1744	397	887	16	35	26%	26%	24%	24%
NXW0550 L	° + 1pumps	989	2180	391	1083	15	43	31%	29%	21%	20%
NXW0550 L	° + 2pumps	1053	2321	389	1138	15	45	30%	28%	22%	21%
NXW0550 L	° + 3pumps	1117	2461	388	1187	15	47	29%	27%	23%	21%
NXW0550 L	° + 4pumps	1180	2602	386	1231	15	48	28%	26%	24%	22%
NXW0600 L	°	792	1746	398	888	16	35	26%	26%	24%	24%
NXW0600 L	° + 1pumps	990	2183	391	1083	15	43	31%	29%	21%	20%
NXW0600 L	° + 2pumps	1054	2323	389	1138	15	45	30%	28%	22%	21%
NXW0600 L	° + 3pumps	1118	2464	388	1188	15	47	29%	27%	23%	21%
NXW0600 L	° + 4pumps	1181	2605	386	1231	15	48	28%	26%	24%	22%
NXW0650 L	°	878	1935	405	927	16	37	25%	25%	25%	25%
NXW0650 L	° + 1pumps	1089	2401	397	1110	16	44	30%	29%	21%	20%
NXW0650 L	° + 2pumps	1166	2571	394	1169	16	46	29%	28%	22%	21%
NXW0650 L	° + 3pumps	1230	2711	393	1212	15	48	28%	27%	23%	22%
NXW0650 L	° + 4pumps	1294	2852	391	1251	15	49	27%	26%	24%	23%
NXW0700 L	°	887	1955	405	926	16	36	25%	25%	25%	25%
NXW0700 L	° + 1pumps	1098	2420	397	1108	16	44	30%	29%	21%	20%
NXW0700 L	° + 2pumps	1175	2590	395	1166	16	46	29%	28%	22%	21%
NXW0700 L	° + 3pumps	1252	2760	393	1218	15	48	28%	27%	23%	22%
NXW0700 L	° + 4pumps	1329	2930	391	1263	15	50	27%	26%	24%	23%
NXW0750 L	°	1030	2270	407	1184	16	47	22%	23%	27%	28%
NXW0750 L	° + 1pumps	1279	2820	398	1434	16	56	29%	29%	21%	21%
NXW0750 L	° + 2pumps	1395	3075	395	1504	16	59	28%	28%	22%	22%
NXW0750 L	° + 3pumps	1472	3245	394	1544	16	61	28%	27%	23%	22%
NXW0750 L	° + 4pumps	1549	3415	392	1580	15	62	27%	26%	24%	23%
NXW0800 L	°	1073	2364	403	1268	16	50	24%	24%	26%	26%
NXW0800 L	° + 1pumps	1297	2859	396	1444	16	57	30%	29%	21%	21%
NXW0800 L	° + 2pumps	1412	3114	394	1512	15	60	29%	28%	22%	21%
NXW0800 L	° + 3pumps	1489	3284	392	1551	15	61	28%	27%	23%	22%
NXW0800 L	° + 4pumps	1566	3453	391	1587	15	62	28%	27%	23%	22%

⚠ NOTE

- The number of pumps refers to the quantity physically present on the machine.
- The weight difference between the types of configurator pumps (low head and high head) is negligible.

5.1. PERCENTAGE DISTRIBUTION OF WEIGHTS ON SUPPORTS (MODEL ° - SIZE FROM 0900 L TO 1400 L)

MODEL		EMPTY						PERCENTAGE WEIGHT DISTRIBUTION ON SUPPORTS (%)			
		Weight		CENTRE OF GRAVITY							
				mm		in					
		kg	lb	Xg	Yg	Xg	Yg	A	B	C	D
NXW0900 L	°	1265	2789	412	1195	16	47	25%	26%	24%	25%
NXW0900 L	° + 1pumps	1527	3366	404	1445	16	57	29%	30%	21%	21%
NXW0900 L	° + 2pumps	1642	3621	401	1524	16	60	28%	28%	22%	22%
NXW0900 L	° + 3pumps	1758	3875	398	1592	16	63	27%	27%	23%	23%
NXW0900 L	° + 4pumps	1873	4130	396	1653	16	65	27%	26%	24%	24%
NXW1000 L	°	1569	3458	418	1300	16	51	22%	24%	26%	28%
NXW1000 L	° + 1pumps	1867	4115	409	1514	16	60	28%	29%	21%	22%
NXW1000 L	° + 2pumps	2019	4450	406	1593	16	63	27%	28%	23%	23%
NXW1000 L	° + 3pumps	2134	4705	404	1646	16	65	26%	27%	23%	24%
NXW1000 L	° + 4pumps	2250	4959	402	1693	16	67	26%	26%	24%	24%
NXW1250 L	°	1676	3696	416	1317	16	52	22%	24%	26%	28%
NXW1250 L	° + 1pumps	1975	4353	408	1517	16	60	28%	29%	21%	22%
NXW1250 L	° + 2pumps	2126	4688	405	1592	16	63	27%	27%	23%	23%
NXW1250 L	° + 3pumps	2242	4942	403	1642	16	65	26%	27%	23%	24%
NXW1250 L	° + 4pumps	2357	5197	401	1688	16	66	26%	26%	24%	24%
NXW1400 L	°	1826	4026	416	1346	16	53	21%	23%	27%	29%
NXW1400 L	° + 1pumps	2124	4683	408	1527	16	60	27%	29%	21%	22%
NXW1400 L	° + 2pumps	2276	5018	405	1597	16	63	27%	27%	23%	23%
NXW1400 L	° + 3pumps	2391	5272	403	1644	16	65	26%	27%	23%	24%
NXW1400 L	° + 4pumps	2507	5527	401	1686	16	66	26%	26%	24%	24%

⚠ NOTE

- The number of pumps refers to the quantity physically present on the machine.
- The weight difference between the types of configurator pumps (low head and high head) is negligible.

5.2. PERCENTAGE DISTRIBUTION OF WEIGHTS ON SUPPORTS (MODEL H - SIZE FROM 0500 L TO 0800 L)

MODEL		EMPTY						PERCENTAGE WEIGHT DISTRIBUTION ON SUPPORTS (%)			
		Weight		CENTRE OF GRAVITY							
				mm		in					
		kg	lb	Xg	Yg	Xg	Yg	A	B	C	D
NXW0500 L	H	782	1724	385	936	15	37	26%	24%	26%	24%
NXW0500 L	H + 1pumps	980	2161	380	1123	15	44	31%	28%	22%	20%
NXW0500 L	H + 2pumps	1044	2301	379	1177	15	46	30%	27%	23%	21%
NXW0500 L	H + 3pumps	1108	2442	379	1224	15	48	29%	26%	24%	21%
NXW0500 L	H + 4pumps	1172	2583	378	1267	15	50	28%	25%	25%	22%
NXW0550 L	H	843	1858	391	897	15	35	26%	25%	25%	24%
NXW0550 L	H + 1pumps	1041	2294	386	1081	15	43	31%	29%	21%	19%
NXW0550 L	H + 2pumps	1104	2435	385	1134	15	45	30%	28%	22%	20%
NXW0550 L	H + 3pumps	1168	2575	384	1181	15	47	29%	27%	23%	21%
NXW0550 L	H + 4pumps	1232	2716	383	1224	15	48	29%	26%	24%	22%
NXW0600 L	H	879	1938	390	920	15	36	26%	25%	25%	24%
NXW0600 L	H + 1pumps	1077	2374	385	1093	15	43	31%	29%	21%	20%
NXW0600 L	H + 2pumps	1141	2515	384	1144	15	45	30%	28%	22%	20%
NXW0600 L	H + 3pumps	1205	2655	383	1189	15	47	29%	27%	23%	21%
NXW0600 L	H + 4pumps	1268	2796	382	1230	15	48	28%	26%	24%	22%
NXW0650 L	H	941	2073	396	940	16	37	25%	24%	26%	25%
NXW0650 L	H + 1pumps	1152	2539	390	1111	15	44	30%	29%	21%	20%
NXW0650 L	H + 2pumps	1229	2709	388	1167	15	46	29%	28%	22%	21%
NXW0650 L	H + 3pumps	1293	2849	387	1208	15	48	29%	27%	23%	22%
NXW0650 L	H + 4pumps	1356	2990	386	1245	15	49	28%	26%	24%	22%
NXW0700 L	H	976	2151	396	953	16	38	24%	24%	26%	25%
NXW0700 L	H + 1pumps	1187	2617	390	1116	15	44	30%	29%	21%	20%
NXW0700 L	H + 2pumps	1264	2786	389	1170	15	46	29%	28%	22%	21%
NXW0700 L	H + 3pumps	1341	2956	387	1218	15	48	28%	27%	23%	22%
NXW0700 L	H + 4pumps	1418	3126	386	1260	15	50	28%	26%	24%	23%
NXW0750 L	H	1131	2493	392	1212	15	48	22%	21%	29%	28%
NXW0750 L	H + 1pumps	1381	3043	387	1439	15	57	24%	23%	28%	26%
NXW0750 L	H + 2pumps	1496	3298	385	1503	15	59	23%	21%	29%	27%
NXW0750 L	H + 3pumps	1573	3468	384	1541	15	61	22%	21%	30%	27%
NXW0750 L	H + 4pumps	1650	3638	383	1575	15	62	28%	26%	24%	22%
NXW0800 L	H	1164	2566	392	1289	15	51	24%	23%	27%	26%
NXW0800 L	H + 1pumps	1388	3060	387	1445	15	57	30%	28%	21%	20%
NXW0800 L	H + 2pumps	1504	3315	386	1508	15	59	29%	27%	22%	21%
NXW0800 L	H + 3pumps	1581	3485	385	1546	15	61	29%	27%	23%	21%
NXW0800 L	H + 4pumps	1658	3655	384	1579	15	62	28%	26%	24%	22%

⚠ NOTE

- The number of pumps refers to the quantity physically present on the machine.
- The weight difference between the types of configurator pumps (low head and high head) is negligible.

5.3. PERCENTAGE DISTRIBUTION OF WEIGHTS ON SUPPORTS (MODEL H - SIZE FROM 0900 L TO 1400 L)

MODEL		EMPTY						PERCENTAGE WEIGHT DISTRIBUTION ON SUPPORTS (%)			
		Weight		CENTRE OF GRAVITY							
				mm		in					
		kg	lb	Xg	Yg	Xg	Yg	A	B	C	D
NXW0900 L	H	1524	3359	398	1290	16	51	23%	23%	27%	26%
NXW0900 L	H + 1pumps	1785	3936	393	1489	15	59	29%	28%	22%	21%
NXW0900 L	H + 2pumps	1901	4191	391	1555	15	61	28%	27%	23%	22%
NXW0900 L	H + 3pumps	2016	4445	389	1613	15	63	28%	26%	24%	23%
NXW0900 L	H + 4pumps	2132	4700	388	1664	15	66	27%	25%	25%	23%
NXW1000 L	H	1742	3841	404	1337	16	53	22%	23%	27%	28%
NXW1000 L	H + 1pumps	2041	4499	398	1528	16	60	28%	28%	22%	22%
NXW1000 L	H + 2pumps	2192	4833	396	1600	16	63	27%	27%	23%	23%
NXW1000 L	H + 3pumps	2308	5088	394	1648	16	65	27%	26%	24%	23%
NXW1000 L	H + 4pumps	2423	5342	393	1692	15	67	26%	25%	25%	24%
NXW1250 L	H	1792	3950	406	1333	16	52	22%	23%	27%	28%
NXW1250 L	H + 1pumps	2090	4608	400	1519	16	60	28%	28%	22%	22%
NXW1250 L	H + 2pumps	2242	4942	397	1590	16	63	27%	27%	23%	23%
NXW1250 L	H + 3pumps	2357	5197	396	1638	16	64	27%	26%	24%	23%
NXW1250 L	H + 4pumps	2473	5452	394	1682	16	66	26%	25%	25%	24%
NXW1400 L	H	1958	4317	404	1361	16	54	22%	22%	28%	28%
NXW1400 L	H + 1pumps	2256	4974	399	1530	16	60	28%	28%	22%	22%
NXW1400 L	H + 2pumps	2408	5309	397	1596	16	63	27%	27%	23%	23%
NXW1400 L	H + 4pumps	2523	5563	395	1640	16	65	27%	26%	24%	23%
NXW1400 L	H + 4pumps	2639	5818	394	1681	16	66	26%	25%	25%	24%

NOTE

- The number of pumps refers to the quantity physically present on the machine.
- The weight difference between the types of configurator pumps (low head and high head) is negligible.

6. ELECTRICAL WIRINGS

NXW chillers are completely wired in the factory and only need the connection to the electricity mains supply, downstream from a group switch, according
to the regulations in force in the country where the machine is installed.
It is also suggested to check:

- the mains supply characteristics, to ensure it is suitable for the levels indicated in the electrical data table, also taking into consideration any other equipment that may be operating at the same time.
- The unit is only powered after the last (hydraulic and electric) installations.
- Follow the connections instructions of the phase conductors, and earth.
- The power supply line will have a special protection upstream against short circuits and earth losses that sections the system according to other users.
- The voltage should be within a tolerance of ± 10% of the rated supply voltage of the machine (for Three-phase units displacement max 3% between the phases). If these parameters are not respected, contact the energy supplier. For electrical wirings use isolated double cables according to the standards in force in the different countries.
- It is necessary to use a omnipolar thermomagnetic switch, in compliance with the CEI-EN standards (contact opening of at least 3 mm), with adequate switch capability and differential protection based on the followed electrical data table, installed as close as possible to the machine.
- It is necessary to carry out an efficient earth connection. The manufacturer can not be held responsible for any damage caused by the failure and ineffective earthing of the machine.
- For units with Three-phase power check the correct connection of the phases.

All electrical operations must be carried out BY QUALIFIED PERSONNEL, IN ACCORDANCE WITH THE CORRESPONDING REGULATIONS, trained and informed about the risks related to such operations.

The characteristics of electric lines and related components must be established by PERSONNEL AUTHORISED TO DESIGN ELECTRIC INSTALLATIONS, following international regulations and the national regulations of the country in which the unit is installed, in compliance with the legislative regulations in force at the moment of installation.

For installation requirements, the wiring layout supplied with the unit must be compulsory referred to. The wiring layout together with the manuals must be kept in good conditions and readily ACCESSIBLE FOR FUTURE OPERATIONS ON THE UNIT.

IT is compulsory to check the machine sealing before connecting the electrical wirings.

The machine should only be powered once the hydraulic and electric operations are completed.

WARNING:
It is forbidden to use water pipes for the earthing of the machine.

6.1. RECOMMENDED SECTION OF ELECTRIC CABLES

The cable sections indicated in the table are advised for a maximum length of 50m/164FT.

For higher lengths or different types of cable installation, it will be the DESIGNERS responsibility to carefully measure the line main switch, the supply power line and the earthing protection connection, and the working connection cables:

- the length
- the type of cable
- Absorption of the unit and its physical position, and room temperature.

WARNING*:*
Check that all power cables are correctly secured to the terminals when switched on for the first time and after 30 days of use. Afterwards, check the connection of the power cables every six months.
Slack terminals could cause the cables and components to overheat.

6.2. CONNECTION TO THE POWER SUPPLY

- Check there is no voltage on the electric line you want to use.

6.2.1. To access the electric box:

- Turn the electrical panel screws ¼ in counter-clockwise direction
- Turn the handle of the door-block disconnecting switch to OFF (see figure). In this way, the electrical panel can be accessed

6.3. ELECTRICAL POWER CONNECTION

- For the functional connection of the unit, run the power supply cable to the electrical panel inside the unit fig. 1 and connect it to the disconnecting switch terminals observing the phase and the earth. fig. 2

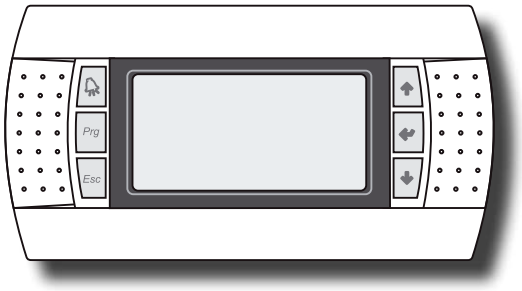
6.4. AUXILIARY CONNECTIONS AT THE USER/ INSTALLER EXPENSE

For installation requirements, refer to the wiring diagram supplied with the unit. The wiring diagram together with the manuals must be kept in good conditions and readily ACCESSIBLE FOR FUTURE OPERATIONS ON THE UNIT.

▲
Fig.1

▲
Fig.2

Key fig. 2	
L1	Line 1
L2	Line 2
L3	Line 3
PE	Earth



7. CONTROL AND FIRST START-UP

7.1. PREPARATION FOR COMMISSIONING

Bear in mind that a free start-up service is offered by the Aermec Technical Service for the unit of this series, at the request of Aermec customers or legitimate owners and in ITALY only.
The start-up must be previously agreed on the basis of the system implementation times. Before the intervention of the AERMEC After Sales Service, all the operations (electrical and hydraulic hook ups, loading and breather from the system) must be completed.

Before starting the unit make sure that:
- All the safety conditions have been respected
- The unit has been properly fixed to the support base
- The minimum technical spaces have been observed;
- Water connections have been performed respecting the input and output
- The hydraulic system has been loaded and vented.
- The hydraulic circuit taps are open
- The electrical wirings have been properly carried out;
- The voltage is within a tolerance of 10% of the unit rated voltage
- The earthing has been carried out correctly
- Tightening of all electrical and hydraulic connections have been well carried out.

WARNING
The first start-up has to be carried out with the standard settings, only when the test is finished the values of the operation Set Point vary.
Before starting up, power the unit for at least 12-24 hours by positioning the protection thermomagnetic switch and the door-block disconnecting switch on ON fig.1
Make sure that the control panel is turned off until it allows the oil heater system the compressor casing.

7.2. FIRST COMMISSIONING OF THE MACHINE

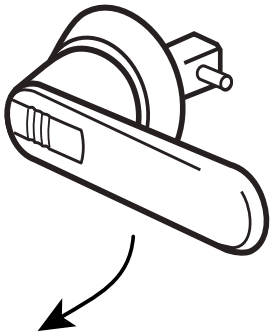
Before activating the unit:
- Close the electric panel lid.
- Position the door-block disconnecting switch of the machine on ON, turning the handle down. **(fig.3)**
- The display on (fig.4) indicates that the unit is ready for operation.

For more information see the USER'S MANUAL

7.3. SEASON CHANGEOVER

For the season changeover, see the user's manual.

Fig.3



Display on on

Fig.4

8. OPERATION CHARACTERISTICS

8.1. COOLING SET POINT

(Default defined) = 7°C, Δt = 5°C.

8.2. HEATING SET POINT

(Default defined) = 45°C, Δt = 5°C.
In case of restoring of the unit supplied power after a momentary interruption, the pre-set mode is maintained in memory.

8.3. COMPRESSOR START-UP DELAY

To prevent the compressor start too close to each other, two functions have been arranged.
- Minimum time from last turnoff 60 seconds.
- Minimum time from last start 300 seconds.

8.4. CIRCULATION PUMP

The electronic board provides an output to manage the circulation pump.
After the first 10 seconds of pump operation, when the water flow rate is running, activate the function of water flow rate alarm (flow switch).

8.5. ANTI-FREEZE ALARM

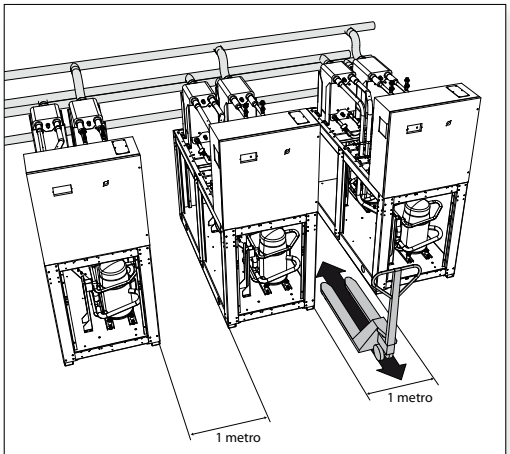
The anti-freeze alarm is active as if the machine is turned-off or if the machine is in standby mode. In order to prevent breakage of the plate-type exchanger due to freezing water contained, the compressor is locked (if the machine is turned on under 4° C) and the heater starts up (if standby below 5° C). If the temperature detected by the probe in the exchanger output and in the chiller input is below +4 ° C.

WARNING
THE ANTI-FREEZE SET TEMPERATURE CAN BE VARIED ONLY BY AN AUTHORISED SERVICE CENTRE AND ONLY AFTER VERIFYING THAT IN THE WATER CIRCUIT IS AN ANTIFREEZE SOLUTION.

The intervention of this alarm sets the compressor block and not of the pump block, which remains active, and the heater starts up if installed.
For resetting the normal functions, the water output temperature has to be over +4 °C, the reset is manual.
WARNING:
AT ANY INTERVENTIONS OF THIS ALARM IT IS RECOMMENDED TO IMMEDIATELY CONTACT THE NEAREST TECHNICAL SERVICE ASSISTANCE

8.6. WATER FLOW RATE ALARM

The PGD1 provides the management of a water flow rate alarm commanded from a flow switch installed on the machine as standard. This safety type can occur after the first 10 seconds of operation of the pump if the water flow rate is not sufficient.
This alarm sets the block of the compressor and the pump.



minimum technical spaces for maintenance

WARNING
Inspection, maintenance and possible repair operations must be carried out only by an authorised technician according to the law.

Unsuitable check/maintenance operation may cause damage to things and people.

9. REGULAR MAINTENANCE

Any cleaning operation is forbidden before disconnecting the unit from the power supply. Check for voltage before operating.
Periodic maintenance is essential to maintain the unit in perfect working order under the functional as well as the energetic aspect. Therefore it is essential to provide yearly controls for the:

9.6.1. Hydraulic circuit

CONTROL:
- Water circuit filling
- Water filter cleaning
- Flow switch control
- Air in the circuit (leaks)
- That the water flow rate to the evaporator is always constant
- The hydraulic piping thermal insulation state
- Where provided the percentage of glycol

9.6.2. Electric circuit

CONTROL:
- Efficiency of safety devices
- Electrical power supply
- Electrical power consumption
- Connections tightened
- Compressor casing heater operation

9.6.3. Cooling circuit

CONTROL:
- Compressor conditions
- Efficiency of the tube core exchanger heater
- Working pressure
- Loss test for the control of the the cooling circuit sealing
- High and low pressure switches operation
- Perform the necessary checks on the filter-drier to verify their efficiency.

9.6.4. Mechanical controls

CONTROL:
- The screws, compressors and the electric box of the unit external panelling are properly tightened. If they are poorly tightened, they produce abnormal noise and vibrations
- The structure conditions.
  If necessary, treat oxidised parts with paints suitable for eliminating or reducing oxidation.

10. EXTRAORDINARY MAINTENANCE

The NXW are loaded with R410A gas and tested in the factory. In normal conditions, no Technical Assistance Service operation is needed for the refrigerant gas check. In the long run, however, small leaks from the joints may arise. Due to these leaks, the refrigerant comes out and the circuit is drained, causing the unit to malfunction. In these cases, the refrigerant leakage points are found and repaired, and the cooling circuit is recharged, operating in compliance with Law 28 December 1993 no. 549.

10.6.1. Loading procedure

The loading procedure is as follows:

- Empty and dehydrate the entire cooling circuit using a vacuum pump connected to both the low and high pressure test points, until the vacuum gauge reads about 10 Pa. Wait some minutes and check that this value does not go back again over 50 Pa.
- Connect the refrigerant gas bomb or a load cylinder to the grip on the low-pressure line.
- Charge the amount of refrigerant gas indicated on the characteristics plate of the machine.
- After any operation control that the liquid indicator indicates a dry circuit (dry-green) In case of partial loss the circuit has to be emptied completely before reloading it.
- The refrigerant R410A has to be loaded only in liquid phase.
- Different operating conditions from the normal can result in different values.
- Leak testing or leaking research must be carried out only by using refrigerant gas R410A by checking with a suitable leak detection.
- It is prohibited to use oxygen or acetylene or other flammable or poisonous gas in the cooling circuit, because they can cause explosions or intoxication.

It is advisable to keep a machine booklet (not supplied, but provided by the user), in order to keep trace of the operations carried out on the unit. In this way, it will be easier to organise the operations properly and facilitate failure prevention and troubleshooting in the machine.
In the booklet, write down date, type of operation carried out (regular maintenance, inspection or repair), description of the operation, measures taken…

It is forbidden to CHARGE the cooling circuits with a refrigerant different from the one indicated. If a different refrigerant gas is used, the compressor may be seriously damaged.

DISPOSAL
Provided that the disposal of the unit is carried out according to the rules in force in different countries.

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